

CLAIMS

1. Electroluminescent device comprising two electrodes (2, 3, 5) between which there is arranged at least one layer of electroluminescent organic semiconductor (4, 4', 4''), and a substrate (2) supporting the said device, as well as an electric current source (1, 8) connected to the electrodes in an electrically conductive manner, characterised in that the substrate (2) consists of a metal or metallic alloy.

2. Device according to Claim 1, characterised in that a first electrode (2, 3) is disposed on a first side of the said at least one layer of electroluminescent organic semiconductor (4, 4', 4''), on a first face thereof which faces the substrate (2), and in that a second electrode (5) is disposed on a second side of said at least one layer of electroluminescent organic semiconductor (4, 4', 4''), on a second face thereof which is opposite the substrate (2), this second electrode (5) allowing an at least partial passage of the light.

3. Device according to one of Claims 1 and 2, characterised in that the metallic alloy is a steel.

4. Device according to any one of Claims 1 to 3, characterised in that the substrate (2) is connected to the current source (1, 8).

5. Device according to Claim 4, characterised in that the substrate (2) forms one of the said two electrodes.

6. Device according to Claim 4, characterised in that the substrate (2) is in electrically conductive contact with one of the said two electrodes (3) and forms a current feed for it.

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7. Device according to any one of Claims 1 to 3, characterised in that the substrate (2) supports one of the said two electrodes (3), which is connected to the current source (1, 8).

5 8. Device according to any one of Claims 1 to 6, characterised in that the substrate (2) is formed by a steel sheet which has undergone a surface treatment.

9. Device according to Claim 8, characterised in that the substrate (2)
10 which has undergone a surface treatment has superficially in the steel sheet a compound which is a conductor of electricity (10).

10. Device according to Claim 8, characterised in that the steel sheet has a surface coating which is a conductor of electricity (3, 9, 12).

11. Device according to Claim 10, characterised in that the surface coating comprises at least one layer of a material chosen from amongst the group consisting of zinc, zinc alloyed with aluminium, aluminium, magnesium, calcium, tin and chromium.

12. Device according to Claim 10, characterised in that the surface coating consists of at least one layer of at least one conductive polymer.

13. Device according to Claim 12, characterised in that the said at least
25 one conductive polymer is chosen from amongst the group consisting of polyacetylene, polyaniline, polypyrrole, polythiophene, derivatives thereof and mixtures thereof.

14. Device according to any one of Claims 8 to 13, characterised in that
30 the substrate (2) is made from steel treated so as to reflect a light

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emitted from the said at least one layer of organic electroluminescent semiconductor (4, 4', 4").

15. Device according to any one of Claims 2 to 14, characterised in that
5 the second electrode (5) has, opposite the substrate (2), an encapsulation (6) made from a transparent material impervious to air and water.

16. Device according to any one of Claims 1 to 15, characterised in that
10 the substrate (2) has two parts, an electrically conductive part which supports the said device and which is possibly connected to the current source and a part remaining electrically insulated vis-à-vis the outside.

17. Device according to any one of Claims 1 to 15, characterised in that
15 the substrate has a first surface on which it supports the said device and a second surface, opposite to the first, on which it supports an additional electroluminescent device according to Claim 1.

18. Method of manufacturing an electroluminescent device, comprising
20 - an arrangement of at least one layer of electroluminescent organic semiconductor between two electrodes,

- a support for the device by means of a substrate, and
25 - a connection of the electrodes to an electric current source,

characterised in that it comprises

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- an arrangement of a first electrode on a substrate consisting of a metal or metallic alloy,

- a deposition of said at least one layer of electroluminescent organic semiconductor on the first electrode, and

- a deposition of a second electrode allowing an at least partial passage of the light on the said at least one layer of organic semiconductor,

- and, possibly, a deposition of a transparent material impervious to air and water on the second electrode, so as to encapsulate the device.

19. Method according to Claim 18, characterised in that the substrate consists of a steel sheet.

20. Method according to one of Claims 18 and 19, characterised in that the said arrangement of a first electrode comprises an activation of the steel sheet to make it able to fulfil a role of first electrode and in that the method comprises an electrical connection between the electrical current source and the steel sheet.

21. Method according to one of Claims 18 and 19, characterised in that the said arrangement of a first electrode comprises an application of the first electrode to a surface of the substrate.

22. Method according to one of Claims 18 to 21, characterised in that it comprises first of all a surface treatment of the substrate.

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23. Method according to Claim 22, characterised in that it comprises, by way of surface treatment, a surface coating of the substrate by at least one electrically conductive compound.

24. Method according to Claim 22, characterised in that it comprises, by way of surface treatment, an enrichment of the substrate, at least on the surface, with an electrically conductive compound.

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